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ATS OPERATIONAL TRANSITION PLAN DURING THE IMPLEMENTATION AND START-UP OF THE NEW S/ADS-B MODE SECONDARY RADAR SYSTEMS, GUAYAQUIL

1. INTRODUCTION

1.1. Air Navigation Services Management, through Internal Air Traffic Management (ATM), is responsible for providing Air Traffic Control Services in Ecuador and as part of the growth and compliance with the objectives of the DGAC, our highest priority is to guarantee operational safety. For this reason, we have completed the acquisition, implementation and start-up of the MSSR Mode-S secondary radar systems, which include ADS-B, and will be installed in Guayaquil to replace the existing ones.

1.2. These new systems will allow us to improve the efficiency and safety of air navigation in Ecuador, through the use of cutting-edge technologies available on the market. As part of this process, the current radar antennas will be replaced and new systems will be installed to provide the Route Radar Control Service for the Island region, as well as the Surveillance Approach Control Service within the Guayaquil Terminal Area.

1.3. The purpose of this circular is to inform the aeronautical community in general, air operators, pilots, controllers, adjacent control units, aeronautical information officers, airport operators and users in general; on the procedures that will be implemented while the implementation and start-up of the new surveillance systems is carried out.

2. OBJECTIVE

2.1 To establish provisions and procedures to guarantee the continuity of air traffic control services at the Guayaquil TMA during the implementation and start-up of the new radar system. These procedures will be based on the standards and methods established in the DGAC's air traffic manuals and regulations, with the objective of maintaining an appropriate balance between flight demand and the ATM system capabilities.

2.2 With the application of this plan and the established procedures, the implementation and start-up of the new radar system will be carried out safely and without significant interruptions in air traffic control services, in order to mitigate any negative impact on the operation of the airspace. This will ensure a successful transition to the improved system.

3. SCOPE

Applicable to the following dependencies:

- Guayaquil area control center.
- Area control center of adjacent FIRs.
- Guayaquil approach control.
- Approach control of the terminal areas of Ecuador.
- Ecuadorian aerodromes control towers.
- ARO/AIS offices.
- International NOTAM Office (NOF).
- Traffic flow management (ATFM).
- Internal management of communications, navigation and surveillance (CNS).
- Internal management of aeronautical meteorology.

4. REFERENCE DOCUMENTATION

- Manual Air Traffic Services MATS, Chapter 3.
- ATFM Operations Plan for the SAM Region (OPSAM).
- Manual of Collaborative Management and Air Traffic Flow Management of Ecuador.
- RDAC 211 - Air Traffic Services.
- Aeronautical information publication (AIP) Ecuador.

5. DEFINITIONS

ATC capacity. Maximum number of aircraft that can be accepted over a given period of time at an ATM resource (airspace sector, waypoint, airport, etc.). The number of aircraft provided with an air traffic service shall not exceed that which can be safely handled by the ATS unit concerned under the prevailing circumstances.

ATFM measurements. Techniques used to manage air traffic demand according to system capacity. Some ATFM measures must be considered as control instructions or procedures.

Calculated take-off time (CTOT). A time calculated and issued by ATFM Unit, as a result of tactical slot allocation, at which a flight is expected become airborne.

Coordinated airport. Airport in which the demand for operations is expected to exceed the capacity of the airport's infrastructure in certain periods, making it necessary to apply processes that allow assigning a priority for the operation of the planned flights, to then be assigned and authorized specific hours of operation.

Expected approach time (EAT). Time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing.

Ground Delay Program (GDP). ATM process where aircraft are held on the ground in order to manage capacity and demand in a specific volume of airspace or at a specific aerodrome. In the process, departure times are assigned to corresponding available entry slots into the constrained airspace or arrival/departure slots into/from the constrained aerodrome. A GDP aims to, among other things, minimize airborne delays. It is a flexible program, and its form may therefore vary depending on the needs of the ATM system. GDPs are best developed in a collaborative manner even though they are typically administered and managed by a FMU or a national/international ATFM center. When a GDP is scheduled to last for several hours, the likelihood of slots having to be revised increases, as conditions could change. There should therefore be a system in place to advise pilots of departure slots as well as of any changes to the GDP.

Holding procedure. A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.

6. PROVISIONS AND PROCEDURES

6.1 OPERATIONAL TRANSITION PROCESS

6.1.1 During the replacement of the radar system within the Guayaquil TMA, APPROACH CONTROL PROCEDURAL will be applied.

6.1.2 Given the significant reduction in the capacity of the ATC sector in the Guayaquil TMA, it is necessary to establish Air Traffic Flow Management procedures so that Air Traffic Services can face this atypical situation while maintaining operational safety.

6.1.3 GUAYAQUIL AIRSPACES

6.1.3.1 ***Lateral and vertical limits***

Guayaquil TMA

Lateral: Circle of 40 NM, centered on the VOR/DME GYV COORD 020742S 0795201W, delimited to the East by the western limits of SER-2 and SEP-1 of TAURA and to the West by the limits of SEP-2.

Verticals: 3000 FT AMSL to FL160

Guayaquil CTR

Lateral: 15 NM radius circle, centered on ARP COORD 020928S 0795302W to the edge of SEP-1 TAURA.

Vertical: GND to 3000 FT AMSL

6.1.3.2 For the purposes of the transition plan, the airspace classification of the TMA and CTR is::

Guayaquil TMA is reclassified to class "**D**".
Guayaquil CTR is reclassified to class "**D**".

6.1.4 All instrument departures and arrival procedures that do not require radar will be authorized for flight planning, taking into account that according to the complexity of the transit these may be changed with the simplified departures indicated in ATTACHMENT A or according to instructions of the ATC.

6.1.5 VFR flights will be allowed within the Guayaquil TMA.

6.1.6 Civil and State aviation schools must submit the planning for the coming week of IFR/VFR training flights within the Guayaquil TMA to the FMU-Guayaquil every Friday until 12:00 HL. This planning will be subject to approval by the air traffic services considering the flow and operational safety criteria.

6.1.7 In case that the GYV, SOL and PAL radio-aids are out of service, the ***Standard for air navigation with the use of the global navigation satellite system (GNSS)*** established and published by AIC 04/20 of April 15 2020 will be applied.

6.1.8 In case of any major deterioration in the provision of ATS services, as a consequence of the failure of the surveillance sensors of the Manta, Quito, Shell Mera, Cuenca radars and/or their radar integration; The ATS Contingency Plan established in ENR 1.15 will be applied of the AIP Ecuador.

6.1.9 In case of emergencies, communications failures and other contingencies, the provisions of Chapter 15 of the Manual for Air Traffic Services regarding Procedures related to emergencies, communications failures and Contingencies will be applied, which is available at:

https://www.aviacioncivil.gob.ec/wp-content/uploads/downloads/2023/07/Manual-para-Servicios-de-Tra%CC%81nsito-Ae%CC%81reo-MATS.pdf

6.1.10 ***NOTAM Publication***

CNS Internal Management will inform the start of replacement of radar systems to the NOF office in order to issuance of the corresponding NOTAM, activating this ATS operational transition plan.

Text of the transition plan activation NOTAM

DUE TO THE LOSS OF ATC SECTOR CAPACITY, THE ATS OPERATIONAL TRANSITION PLAN IS ACTIVATED IN GUAYAQUIL TMA.

Text of the transition plan deactivation NOTAM

ATS OPERATIONAL TRANSITION PLAN HAS BEEN DEACTIVATED, PROVISION OF ATS SERVICES NORMAL.

6.1.11 The Guayaquil Area Control Center (ACC Guayaquil) is located within the "José Joaquín de Olmedo" International Airport in Guayaquil city.

AMHS Address :	SEFGZQZX/ SEGUZRZS
Phones :	593 2 2947400 ext. 2130
	593 4 2925495
	593 4 2924219
E-mail :	atmacc@aviacioncivil.gob.ec
	accgye.supervisor@aviacioncivil.gob.ec

6.1.12 The Guayaquil Air Traffic Flow Management Unit Office is located in the Guayaquil Area Control Center. You can contact the agency at the following address:

Phone :	593 2 2947400 ext. 2132
AFTN :	SEGUZDZX
E-mail :	fmp.accgye@aviacioncivil.gob.ec
	fmp_accgye@aviacioncivil.gob.ec

6.2 ATFM MEASUREMENTS

6.2.1 The following ATFM measures are established to maintain the balance between air demand and ATM system capacity; controlling air flow and will be put into effect upon activation of this Circular.

6.2.2 To declare the "José Joaquín de Olmedo" International Airport in Guayaquil city as a "***coordinated airport***" during the implementation and testing period of the new radar system.

6.2.3 Non-scheduled IFR domestic flights to SEGU destination will be required to request the calculated takeoff time (CTOT) prior to start-up and/or start the operation.

6.2.4 Non-scheduled domestic flights overflying the Guayaquil TMA will be required to request entry authorization prior to their operation at least 60 minutes beforehand.

6.2.5 The Flow Control Office (FMU Guayaquil) or the Guayaquil Area Control Center supervisor may establish any other flow management measure in order to maintain the balance between air demand and the airport capacity limits / ATM system (See ATTACHMENT C).

6.3 FLIGHT PLANS SUBMISSION TIME

6.3.1 Flight plans for domestic flights (IFR or VFR) to or from the Guayaquil airport will be submitted at least 4 hours in advance of the estimated off-block time (EOBT) and the ARO/AIS office must transmit it immediate, taking into account the requirements for timely reporting to ATS units in the airspace along the route to be flown, including prompt submission requirements for air traffic flow management (ATFM).

6.3.2 Flight plans for international flights (IFR or VFR) from Guayaquil airport will be submitted at least 4 hours in advance of the estimated off-block time (EOBT) and the ARO/AIS office must transmit it immediately, taking into account the requirements for timely information to ATS units in the airspace along the route to be flown, including prompt submission requirements for air traffic flow management (ATFM).

7. SIMPLIFIED PROCEDURES

7.1 *Coordination for IFR aircraft arriving at Guayaquil Airport*

7.1.1 Guayaquil Control ACC1/ACC2 will descend to the aircraft arriving north-south until FL110 and south-north until FL140 and, if applicable, will instruct the aircraft to **hold** at the **holding points** at the Guayaquil TMA (See ATTACHMENT B).

7.1.2 Guayaquil Control ACC1/ACC2 will guarantee the Guayaquil Approach control a minimum separation of 08 minutes between consecutive flights regardless of the flight level and the established arrival route.

7.1.3 The entry points for the TMA GUAYAQUIL will be: DAKAB, VULKY, DALUD, RENAR, IROMO, PUNAS, EVRED (ASOSI is excluded).

7.1.4 When runway 21 is in use, all IFR traffic will be routed from the entry points to the SIDEV, MUBAS, GYV, PAL position to carry out the instrument approach procedure or visual approach.

7.1.5 When runway 03 is in use, all IFR traffic will be routed from the entry points to the SOL, UMDER, ARSOR, GYV position to carry out the instrument approach procedure or visual approach.

7.2 *Coordination for IFR aircraft departing Guayaquil Airport*

7.2.1 IFR aircraft that are authorized with any of the SIMPLIFIED INSTRUMENTAL DEPARTURES must proceed with the instruction described in ATTACHMENT A, complying with the specified trajectories and altitude restrictions or continue with the ATC instructions.

7.2.2 The aerodrome control tower unit will assign the SOL 3 departure including the phrase NORTH FLOW to aircraft heading north using the following phraseology and flight plan format:

Phraseology:

"HC-ALE CLEARED TO QUITO (OR RADIOAIDS) VIA W1 (ROUTE), CLIMB TO FLIGHT LEVEL 230 (OR FEET) RUNWAY 21, DEPARTURE SOL 3 NORTH FLOW, TRANSPONDER 1425"

Flight plan (box 15):

"SOL3 SOL GYV310016 DCT PAMIS G675 QIT DCT"

7.2.3 The aerodrome control tower unit will assign the SOL 3 departure including the phrase SOUTH FLOW to aircraft heading south using the following phraseology and flight plan format:

Phraseology:

"HC-ALE CUENCA TO CUENCA (OR RADIOAIDS) VIA A566 (ROUTE), CLIMB TO FLIGHT LEVEL 210 (OR FEET) RUNWAY 21, DEPARTURE SOL 3 SOUTH FLOW, TRANSPONDER 1425"

Flight plan (box 15):

"SOL3 SOL GYV210025 DCT EVRED A566 CUV DCT"

7.2.4 The aerodrome control tower unit, after coordination with Guayaquil Approach, may authorize the RNAV REGAP 2 departure if traffic conditions allow it and with the restriction described in ATTACHMENT A; using the following phraseology:

"HC-ALE CLEARED TO QUITO (OR RADIOAIDS) VIA W1 (ROUTE), CLIMB TO FLIGHT LEVEL 230 (OR FEET) RUNWAY 21, EXIT VIA REGAP 2 CROSS REGAP AT/OR ABOVE FLIGHT LEVEL 100 (ONE HUNDRED), TRANSPONDER 1425"

7.2.5 The separation between consecutive IFR departures will be at least 5 minutes, and the separation in time may be increased depending on the difference in speeds.

7.2.6 When runway 21 is in use, no IFR aircraft will take off if the aircraft on final approach has already crossed PAL or LOGED.

7.2.7 When runway 03 is in use, no IFR aircraft will take off if the aircraft on final approach has already crossed SOL or IRODA.

7.3 ***Coordination for VFR aircraft departing***

7.3.1 Prior to start-up, all VFR flight, you must contact the Guayaquil Ground unit and request the estimated taxi time, helicopters are excluded.

7.4 ***VFR training sectors***

7.4.1 Subject to traffic and a maximum of two VFR flights will be authorized within each training sector, the time spent there may not exceed 60 minutes.

7.4.2 The upper vertical limit of instruction sector No. 4 will be 2500 FT.

7.4.3 When runway 21 is in use, training sector No.3 cannot be used.

7.4.4 When runway 03 is in use, none of the instruction sectors may be used.

ATTACHMENT A

SIMPLIFIED INSTRUMENTAL DEPARTURES

Air Traffic Control will instruct aircraft to carry out one of the following simplified instrumental departures.

RUNWAY 21	INSTRUCTIONS
SOL 3 **NORTH FLOW**	**DEPARTURE:** AFTER TAKE-OFF, CLIMB MAINTAINING RUNWAY HEADING UP TO 5DME/GYV, CROSS AT/OR ABOVE 500', THEN CONTINUE: **SOL 3:** HEADING261º TO NDB/SOL, CROSS AT/OR ABOVE 2100'; AFTER SOL **TURN RIGHT MAINTAINING QDR360/SOL TO CROSS R310/GYV AT 16DME/GYV AT/OR ABOVE FL120, THEN TURN DIRECT TO POSITION (PAMIS, VULKY, DALUD, OBDEN, RENAR)** OR PROCEED AS ATC INSTRUCTIONS.
SOL 3 **SOUTH FLOW**	**DEPARTURE:** AFTER TAKE-OFF, CLIMB MAINTAINING RUNWAY HEADING TO 5DME/GYV, CROSS AT/O ABOVE 500', THEN CONTINUE: **SOL 3:** HEADING 261º TO NDB/SOL, CROSS AT/OR ABOVE 2100'; AFTER SOL **LEFT TURN MAINTAINING QDR180/SOL UNTIL CROSSING R210/GYV AT 25DME/GYV AT/OR ABOVE FL120, THEN TURN DIRECT TO POSITION (PUKNO, PUNAS, EVRED)** OR PROCEED AS ATC INSTRUCTIONS.
RNAV **REGAP 2**	**DEPARTURE:** CLIMB HEADING 213° UNTIL REACHING 1500', LEFT TURN DIRECT TO **REGAP TO CROSS AT/OR ABOVE FL100**. CONTINUE DIRECT TO USOGI TO CROSS IT AT/OR ABOVE FL160, THEN DIRECT TO PAMIS AND CROSS IT AT/OR ABOVE FL190.

ATTACHMENT B

HOLDING PROCEDURE ON ENTRY POINTS TMA GUAYAQUIL

If necessary, Air Traffic Control will instruct aircraft to carry out a holding procedure at the entry points using the following phraseology:

"HC-ALE, PROCEED UNTIL **DAKAB** MAINTAIN FLIGHT LEVEL 110, MAINTAIN HOLD AS PUBLISHED, ESTIMATED APPROACH TIME AT 2355".

ENTRY POINT	DESCRIPTION OF THE WAITING PROCEDURE	MINIMUM USABLE LEVEL
proceed to **DAKAB**,	outbound leg **022 DEGREES**, inbound leg **202 DEGREES**, **RIGHT** turns, Outbound track maximum **1.5** minutes.	FL050
proceed to **DALUD**,	outbound leg **003 DEGREES**, inbound leg **183 DEGREES**, **RIGHT** turns, Outbound track maximum **1.5** minutes.	FL050
proceed to **RENAR**,	outbound leg **328 DEGREES**, inbound leg **148 DEGREES**, **LEFT** turns, Outbound track maximum **1.5** minutes.	FL050
proceed to **IROMO**,	outbound leg **279 DEGREES**, inbound leg **099 DEGREES**, **LEFT** turns, Outbound track maximum **1.5** minutes.	FL050
proceed to **PUNAS**,	outbound leg **188 DEGREES**, inbound leg **008 DEGREES**, **LEFT** turns, Outbound track maximum **1.5** minutes.	FL050
proceed to **EVRED**,	outbound leg **178 DEGREES**, inbound leg **358 DEGREES**, **RIGHT** turns, Outbound track maximum **1.5** minutes.	FL140

ATTACHMENT C

SUMMARY OF ATFM MEASUREMENTS

ATFM MEASUREMENT	CONTROL MECHANISM
GROUND DELAY PROGRAM (GDP)	Calculated take-off time (CTOT).
RE-ROUTE	Flight path change to avoid constraint.
GROUND STOP (GS)	Prevent departures from specific aerodromes to address existing tactical load on an arrival aerodrome.
MINUTES-IN-TRAIL (MINIT)	Time-based separation on a single stream of traffic.
MILES-IN-TRAIL (MIT)	Distance-based separation on a single stream of traffic.
MINIMUM DEPARTURE INTERVALS	Time-based separation of departures from the same aerodrome.
FIX BALANCING	Flight path change to avoid.
LEVEL CAPPING	Flight path change to avoid.